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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>A61K 7/00, 7/48, 7/50</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 98/03147</b> <b>(43) International Publication Date:</b> 29 January 1998 (29.01.98)
<b>(21) International Application Number:</b> PCT/US97/10724 <b>(22) International Filing Date:</b> 19 June 1997 (19.06.97)  <b>(30) Priority Data:</b> 60/016,104 24 July 1996 (24.07.96) US 08/706,627 6 September 1996 (06.09.96) US  <b>(71) Applicant:</b> KIMBERLY-CLARK WORLDWIDE, INC. [US/US]; 401 North Lake Street, Neenah, WI 54956 (US).  <b>(72) Inventors:</b> HAMMONDS, Yvette, Lynn; 513 North Hickory Street, Fond du Lac, WI 54937 (US). COLE, Douglas, Bryan; 6 Oneida Court, Appleton, WI 54911 (US). ECKERT, John, Charles; 1523 South Lee Street, Appleton, WI 54915 (US). SIGL, Wayne, Clement; 251 East Doty Avenue, Neenah, WI 54956 (US).  <b>(74) Agents:</b> CURTIN, Jeffrey, B. et al.; Kimberly-Clark Worldwide, Inc., 401 North Lake Street, Neenah, WI 54956 (US).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> FIBROUS SHEET MATERIALS CONTAINING OAT EXTRACT		
<b>(57) Abstract</b>		
<p>Fibrous sheet materials which incorporate oat extract provide a soothing effect to the skin of a user. In particular, the fibrous materials may be used for wet wipes. The wet wipes are at least partially saturated with an aqueous solution comprising oat extract which may reduce irritation and redness for users having sensitive skin. The oat extract may also be used on other fibrous materials intended for contact with the skin of the user such as facial tissue products and liner materials for absorbent articles such as diapers.</p>		

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## FIBROUS SHEET MATERIALS CONTAINING OAT EXTRACT

Background of the Invention

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Field of the Invention

The present invention relates to fibrous sheet materials which contain oat extract. The invention particularly concerns wet wipes which have been at least partially saturated with an aqueous solution which includes oat extract.

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Description of the Related Art

Wet wipes are well known commercial consumer products which have been available in many forms. Perhaps the most common form of wet wipes has been a stack of moistened sheets which have been packaged in a plastic container. The wet wipes have been made from a variety of materials which have been moistened with a variety of suitable aqueous wiping solutions. Such wet wipes have been used for baby wipes, hand wipes, household cleaning wipes, industrial wipes, personal hygiene wipes and the like.

However, the use of such wet wipes on sensitive skin has not been completely satisfactory. For example, the use of such wet wipes has not always led to a smoother, softer feel to the skin and at times has appeared to irritate and increase the redness of the skin and, in particular, very sensitive skin. Accordingly, it remains desirable to provide fibrous sheet materials and, in particular, wet wipes which have an improved soothing effect on the skin.

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Summary of the Invention

In response to the difficulties and problems discussed above, new fibrous sheet materials such as wet wipes which include an effective amount of oat extract to benefit sensitive skin have been discovered.

30

In one aspect, the present invention provides a fibrous sheet material intended for contact with skin of a wearer which comprises an oat extract solution which includes oat extract and a solubilizing agent to provide a soothing effect to the skin. In a particular aspect, the oat extract solution comprises from about 0.5 to about 50 weight percent of

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oat extract and from about 10 to about 90 weight percent of the solubilizing agent based on a total weight of the solution and water.

5 In another aspect, the present invention provides a wet wipe which includes an aqueous liquid which comprises an oat extract solution, a preservative, and water. In a particular aspect, the wet wipe includes from about 150 to about 600 weight percent of the aqueous liquid. The aqueous liquid includes from about 0.5 to about 10 weight percent of an aqueous oat extract solution which includes from about 0.5 to about 20 weight percent oat extract and from about 30 to about 60 weight percent of a solubilizing agent  
10 based on a total weight of the solution; from about 0.1 to about 1.0 weight percent of a preservative; and water. The solution may also include from about 0.25 to about 5.0 weight of a surfactant to aid in skin cleansing.

15 In yet a further aspect, the present invention provides an absorbent article which comprises: a) a substantially liquid impermeable outer cover; a liquid permeable bodyside liner which is positioned in facing relation with the outer cover wherein the bodyside liner includes oat extract to provide a soothing effect to a wearer's skin; and c) an absorbent body located between the outer cover and the bodyside liner.

20 The present invention, in its various aspects, advantageously relates to fibrous sheet materials such as wet wipes which, when compared to conventional sheet materials and wet wipes, provide an improved soothing effect on the skin. In particular, the present invention provides a wet wipe which is impregnated with an aqueous solution comprising oat extract which functions to clean the skin while at the same time soothing the skin.  
25 Such wet wipes are particularly useful on skin which is sensitive and may help reduce skin redness.

#### Detailed Description of the Invention

30 The present invention relates to fibrous sheet materials which include oat extract to provide a soothing effect to the skin. The fibrous sheet materials of the present invention can be used in a wet or partially saturated state for wet wipes such as baby wipes, hand wipes, face wipes, household wipes, industrial wipes, personal hygiene wipes and the like; or in a dry state for conventional facial tissue, bathroom tissue or towels. The  
35 fibrous sheet materials may also be used as components in disposable absorbent articles

such as diapers, training pants, feminine care products, adult incontinence products, and the like. For example, the fibrous sheet material may be used as the bodyside liner in a diaper article to protect and soothe the skin of the infant.

5 Materials suitable for the fibrous sheet materials of the present invention are well known to those skilled in the art. The sheet materials can be made from any woven or nonwoven fibrous material. For example, the sheet material may include meltblown materials, coform materials, air-laid materials, wet-laid materials, bonded-carded web materials, hydroentangled materials and the like or combinations thereof. The sheet  
10 material can also comprise synthetic or natural fibers or combinations thereof. The sheet material may have a basis weight of from about 5 to about 200 grams per square meter and desirably from about 40 to about 100 grams per square meter depending upon the intended end use.

15 The fibrous sheet materials of the different aspects of the present invention include oat extract. Oat derivatives such as colloidal oatmeal, hydrolysed oat protein and oat extract have been used in the cosmetics and pharmaceutical industries as a skin protectant which provides a smooth after feel. Specifically, the carbohydrates and protein in the oat derivatives have been known to function as a protectant to aid in enhancing the skin's  
20 barrier properties and thereby soothing the skin. The lipids in the oat derivatives, such as the beta glucans, have also been known to function as an emollient to lubricate and soothe the skin. For example, colloidal oatmeal has been used for bar soaps, baths, lotions and poultices to benefit skin that has been damaged, irritated or distressed due to a wide variety of reasons. However, some of the oat derivatives, such as colloidal  
25 oatmeal, are not soluble or stable in aqueous solutions and may leave a chalky or powder residue after topical use. Moreover, other oat derivatives, such as hydrolysed oat protein, undergo processes such as hydrogenation which may alter or adversely affect their properties. In particular, hydrolysed oat protein has been known to have a very strong odor which may adversely affect the consumers perceptions.

30 Applicants have discovered that oat extracts are particularly desirable for use in fibrous sheet materials intended for personal use because they are typically readily soluble in the presence of certain solubilizing agents, relatively stable in aqueous solutions and relatively free of any malodor compared to other oat derivatives. For example, the oat  
35 extract used in the different aspects of the present invention is desirably a water-soluble

oat extract such as an extraction of water, alcohols, glycerols, sorbitol, glycols, surfactants and the like and mixtures and combinations thereof.

5 Oat extracts for use in the present invention generally can be made by treating oats with extraction agents by methods known to those skilled in the art. Useful extraction agents may include water, alcohols, glycols, mineral oil, hydrocarbons, silicones, fatty acids, fatty acid derivatives, waxes, ethers, esters, and mixtures thereof.

10 The oat extract may be applied to the fibrous sheet material in a variety of forms depending upon the intended use of the material. Desirably, the oat extract is solubilized in a solution and the oat extract solution is applied to the sheet material to provide an even distribution of the oat extract on the material and to better impregnate the material. The oat extract solution may be applied to the fibrous sheet material by any conventional means, such as dipping, spraying, printing, brush coating or the like. Depending upon  
15 the intended end use of the fibrous sheet material, the oat extract solution may be allowed to dry before the material is used. Alternatively, the oat extract may be applied to the fibrous sheet material in a substantially dry state or in an encapsulated state. The oat extract may otherwise be impregnated into a porous or microporous carrier material which is attached to the fibrous sheet material.

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The oat extract may be applied to the entire sheet material or may be selectively applied to particular sections of the sheet material depending upon the intended end use. For example, if the sheet material is intended for use as a bodyside liner in an absorbent article, the oat extract solution may be applied to the central region of the article where  
25 most of the irritation on the skin of the wearer occurs. Alternatively, if the sheet material is intended for use as a wet wipe, the sheet material may be at least partially saturated with the oat extract solution. The oat extract solution may otherwise be applied to the fibrous sheet material at the point of use.

30 The oat extract solution of the present invention includes an effective amount of oat extract which is solubilized in a solubilizing agent. The solubilized oat extract may then be further diluted in another liquid such as water. The oat extract solution may also include emollients, moisturizers, surfactants, preservatives, chelating agents, fragrances, pH buffers or combinations thereof. Suitable surfactants include anionic surfactants such  
35 as acyl glutamates and acyl isethionates, alkanolamids, amphoteric surfactants and the



like. For example, a suitable acyl glutamate anionic surfactant is potassium cocyl glutamate and a suitable acyl isethionate anionic surfactant is ammonium cocyl isethionate. A suitable amphoteric surfactant is disodium capryloamphdipropionate.

5 As discussed above, the oat extract is particularly useful in the present invention due to its solubility and stability in an aqueous environment. This allows the oat extract to be used in a variety of products in which other oat derivatives, such as colloidal oatmeal, which are unstable in an aqueous environment would not be suitable or aesthetically desirable. This is particularly true in wet wipe products. The oat extract solution may  
10 include an effective amount of oat extract which is capable of providing a soothing effect to the skin of the wearer in the particular product application. For example, the oat extract solution may include from about 0.5 to about 50 weight percent and desirably from about 0.5 to about 20 weight percent of oat extract based on a total weight of the solution.

15 The solubilizing agent in the oat extract solution may be any agent which effectively solubilizes the oat extract and which provides a solution which remains stable. For example, the solubilizing agent may be butylene glycol, propylene glycol, dipropylene glycols, glycerols, aqueous sorbitols and the like. Desirably, the solubilizing agent is not  
20 irritating to the skin of the wearer. In particular, applicants have discovered that glycerin effectively solubilizes the oat extract while being relatively non-irritating to the skin of the user. If it is desirable to use a glycol as the solubilizing agent, butylene glycol is particularly desirable when compared to propylene glycol because it is less irritating to the skin of many users. Alternatively, the solubilizing agent may include a surfactant,  
25 emulsifier or other solubilizing ingredient to avoid using propylene or butylene glycol. The oat extract solution may include any amount of solubilizing agent which is capable of solubilizing the oat extract. For example, the oat extract solution may include from about 10 to about 90 weight percent and desirably from about 30 to about 60 weight percent of the solubilizing agent based on a total weight of the solution.

30 A suitable oat extract solution for use in the different aspects of the present invention includes about 10 weight percent oat extract, about 45 weight percent 1,3 butylene glycol and about 45 weight percent water based on a total weight of the solution. Such a solution is available under the trade designation OSTAR™ ARRIVEEN BG-25 from  
35 Canamino, Incorporated, a business having offices in Saskatoon, Canada.

The oat extract solution may be applied to the fibrous sheet material in any amount which provides the desired protection of and soothing effect to the skin of the user in the particular product application. For example, the oat extract solution may be added to the fibrous sheet material at an add-on level of from about 0.1 to about 50 weight percent and desirably from about 0.5 to about 20 weight percent based on a dry weight of the fibrous sheet material. The oat extract solution may also be incorporated into another liquid before being applied to the fibrous sheet material.

- 10 In a particular embodiment of the present invention, the fibrous sheet material of the present invention is used to provide a wet wipe such as a baby wipe. Such wet wipes are well known to those skilled in the art and generally include sheets of material which are at least partially saturated with an aqueous liquid. As discussed above, oat extract is particularly well suited for use in baby wipes because it can be provided in an aqueous environment which is generally stable. Moreover, the use of wet wipes as a means of transferring oat extract to the skin is a particularly effective means compared to using a lotion or other type of cosmetic application. Typically, wet wipes may be used at a frequency of from about 5-10 times per day on a diaper wearing infant while cosmetic applications, such as lotions, are typically used at a frequency of 1-2 times per day.
- 15 20 Thus, the use of wet wipes to transfer the oat extract to the skin results in a higher frequency of application which may more effectively impart a soothing effect on the skin.

- The wet wipe may comprise any material described above as being useful for the fibrous sheet material of the present invention. For example, the sheet material for the wet wipe may comprise a coform basesheet of polymeric microfibers and cellulosic fibers having a basis weight of from about 60 to about 85, desirably from about 60 to about 80 grams per square meter, and desirably from about 75 to about 80 grams per square meter. Such coform basesheets are manufactured generally as described in U.S. Patent No. 4,100,324 to Anderson et al. which issued July 11, 1978, and which is herein incorporated by reference.
- 25 30

- Typically, such coform basesheets comprise a gas-formed matrix of thermoplastic polymeric meltblown microfibers, such as, for example, polypropylene microfibers, and cellulosic fibers, such as, for example, wood pulp fibers. The relative percentages of the
- 35

polymeric microfibers and cellulosic fibers in the coform basesheet can vary over a wide range depending on the desired characteristics of the wet wipes. For example, the coform basesheet may comprise from about 20 to about 100 weight percent, desirably from about 20 to about 60 weight percent, and more desirably from about 30 to about 50 weight percent of polymeric microfibers based on the dry weight of the coform basesheet being used to provide the wet wipes. In a particular aspect, the coform basesheet includes an inner coform layer of polypropylene microfibers and cellulosic fibers positioned between two outer coform layers of linear low density polyethylene microfibers and cellulosic fibers. In such a configuration, the outer layers advantageously provide a soft outer surface while the inner layer provides strength to the coform basesheet. Such coform basesheets have been found to provide wet wipes having improved softness and cleaning properties compared to other sheet materials. Alternatively, the wet wipes can be made from a meltblown sheet of polymeric microfibers having a basis weight of from about 25 to about 120 grams per square meter.

The individual wet wipes contain an aqueous liquid which is absorbed into the wet wipes. The aqueous liquid contains the oat extract solution of the present invention to protect and impart a soothing effect to the skin of the wearer as the wet wipes are used to repeatedly clean the skin. The aqueous liquid contained within the wet wipes may also include any suitable components which provide the desired wiping properties. For example, the components may include emollients, moisturizers, fragrances, surfactants, preservatives, chelating agents, pH buffers or combinations thereof.

The aqueous liquid may include any amount of the oat extract solution which provides the desired effect to the skin. For example, the aqueous liquid may include from about 0.5 to about 10 weight percent and desirably from about 1.0 to about 3.0 weight percent of the oat extract solution based on the total weight of the aqueous liquid. In a particular aspect, the aqueous liquid includes about 1.5 weight percent of an oat extract solution which includes about 10 weight percent oat extract, about 45 weight percent butylene glycol and about 45 weight percent water based on a total weight of the solution. If the amount of oat extract solution in the liquid is less than the above-identified range, the wet wipe may not impart the desired soothing effect to the skin of the wearer.

The preservatives in the aqueous liquid may include any preservatives known to those skilled in the art which effectively inhibit the growth of microorganisms. For example, the

preservative may include parabens, sodium hydroxymethylglycinate, organic acids such as benzoic acid, DMDM hydantoin, DMDM hydantoin and iodopropynyl butyl carbamate, imidazolidinyl urea, 2-bromo-2-nitropropane-1,3-diol, phenoxyethanol and the like or any combinations thereof. A suitable preservative is sodium hydroxymethylglycinate which is commercially available from Sutton Laboratories under the trade designation SUTTOCID A. The aqueous liquid may include any amount of preservative which provides the desired effect. For example, the aqueous liquid may include from about 0.1 to about 1.0 weight percent of the preservative based on the total weight of the aqueous liquid.

The aqueous liquid may further include a surfactant at an add-on of from about 0.1 to about 5 weight percent and desirably from about 0.5 to about 1.0 weight percent based on the total weight of the liquid. Such surfactants provide improved skin cleansing to the wet wipe. A particularly suitable surfactant includes Coco Phosphatidyl PG-Dimonium Chloride which is commercially available from Mona Industries under the trade designation PHOSPHOLIPID CDM.

The amount of liquid contained within each wet wipe may vary depending upon the type of material being used to provide the wet wipe, the type of liquid being used, the type of container being used to store the wet wipes, and the intended end use of the wet wipe. Generally, each wet wipe can contain from about 150 to about 600 weight percent and desirably from about 250 to about 450 weight percent liquid based on the dry weight of the wipe for improved wiping. In a particular aspect wherein the wet wipe is made from a coform material comprising from about 30 to about 40 weight percent polymeric microfibers based on the dry weight of the wipe, the amount of liquid contained within the wet wipe is from about 300 to about 400 weight percent and desirably about 330 weight percent based on the dry weight of the wet wipe. If the amount of liquid is less than the above-identified range, the wet wipe may be too dry and may not adequately perform. If the amount of liquid is greater than the above-identified range, the wet wipe may be oversaturated and soggy and the liquid may pool in the bottom of the container.

Each wet wipe is generally rectangular in shape and may have any suitable unfolded width and length. For example, the wet wipe may have an unfolded length of from about 2.0 to about 80.0 centimeters and desirably from about 10.0 to about 25.0 centimeters and an unfolded width of from about 2.0 to about 80.0 centimeters and desirably from

about 10.0 to about 45.0 centimeters. Each individual wet wipe is typically arranged in a folded configuration and stacked one on top of the other to provide a stack of wet wipes.

Such folded configurations are well known to those skilled in the art and include c-folded, z-folded, quarter-folded configurations and the like. The stack of folded wet  
5 wipes may be placed in the interior of a container, such as a plastic tub, to provide a package of wet wipes.

In another particular embodiment of the present invention, the fibrous sheet material of the different aspects of the present invention is intended for use as a bodyside liner for  
10 an absorbent article such as a diaper. Such absorbent articles generally include a substantially liquid impermeable outer cover, a porous, liquid permeable bodyside liner positioned in facing relation with the outer cover, and an absorbent body, such as an absorbent pad, which is located between the outer cover and the bodyside liner. The  
15 absorbent article may also include elastic members, such as leg elastic members and waist elastic members to help reduce leaks. The elastic members are secured to the absorbent article in an elastically contractible condition so that in a normal under strain configuration, the elastic members effectively contract against the absorbent article. The  
20 absorbent article may further include a pair of fasteners which are employed to secure the article about the waist of a wearer. Suitable fasteners include hook-and-loop type fasteners, adhesive tape fasteners, buttons, pins, snaps, mushroom-and-loop fasteners, and the like. Other suitable components may also be incorporated on the absorbent article.

The absorbent article may be of various suitable shapes. Examples of diaper  
25 configurations suitable for use in connection with the instant application and other diaper components suitable for use on diapers are described in U.S. Patent 4,798,603 issued January 17, 1989, to Meyer et al.; U.S. 5,176,668 issued January 5, 1993, to Bernardin; U.S. 5,176,672 issued January 5, 1993, to Bruemmer et al.; U.S. 5,192,606 issued March 9, 1993, to Proxmire et al., and U.S. 5,509,915 issued April 23, 1996, to Hanson  
30 et al., the disclosures of which are herein incorporated by reference to the extent they are consistent herewith.

The various components of the article are integrally assembled together employing various types of suitable attachment means, such as adhesive, sonic bonds, thermal  
35 bonds or combinations thereof. For example, the outer cover and bodyside liner may be

assembled to each other and to the absorbent body with adhesive, such as a hot melt, pressure-sensitive adhesive. The adhesive may be applied as a uniform continuous layer of adhesive, a patterned layer of adhesive, a sprayed pattern of adhesive, or an array of separate lines, swirls or dots of adhesive. Similarly, other components, such as the elastic members and the fasteners, may be assembled into the article by employing the above-identified attachment mechanisms.

The outer cover of the article may suitably be composed of a material which is either liquid permeable or liquid impermeable. It is generally preferred that the outer cover be formed from a material which is substantially impermeable to liquids. For example, a typical outer cover can be manufactured from a thin plastic film or other flexible liquid-impermeable material. If it is desired to present the outer cover with a more clothlike feeling, the outer cover may comprise a polyolefin film having a nonwoven web laminated to the outer surface thereof, such as a spunbond web of polyolefin fibers. For example, a stretch-thinned polypropylene film having a thickness of about 0.015 millimeter (0.6 mil) may have thermally laminated thereto a spunbond web of polypropylene fibers, which fibers have a thickness of about 1.5 to 2.5 denier per filament, which nonwoven web has a basis weight of about 17 grams per square meter (0.5 ounce per square yard). Methods of forming such clothlike outer covers are known to those skilled in the art.

Further, the outer cover may be formed of a woven or nonwoven fibrous web layer which has been totally or partially constructed or treated to impart a desired level of liquid impermeability to selected regions that are adjacent or proximate the absorbent body. Still further, the outer cover may optionally be composed of a micro-porous "breathable" material which permits vapors to escape from the absorbent body while still preventing liquid exudates from passing through the outer cover.

The bodyside liner suitably presents a bodyfacing surface which is compliant, soft feeling, and nonirritating to the wearer's skin. Further, the bodyside liner may be less hydrophilic than the absorbent body, to present a relatively dry surface to the wearer, and may be sufficiently porous to be liquid permeable, permitting liquid to readily penetrate through its thickness. The bodyside liner is suitably employed to help isolate the body of the wearer from any exudates contained within the article.

The bodyside liner of the absorbent article may be manufactured from a wide selection of web materials, such as woven and nonwoven fabrics as described above as being suitable for the fibrous sheet materials of the present invention. For example, the bodyside liner may be composed of a meltblown or spunbonded web of polyolefin fibers.

- 5 The bodyside liner may also be a bonded-carded web composed of natural and/or synthetic fibers. The bodyside liner may be composed of a substantially hydrophobic material, and the hydrophobic material may, optionally, be treated with a surfactant or otherwise processed to impart a desired level of wettability and hydrophilicity. In a particular embodiment of the present invention, the bodyside liner comprises a
- 10 nonwoven, spunbond, polypropylene fabric composed of about 2.8-3.2 denier fibers formed into a web having a basis weight of about 20 grams per square meter and a density of about 0.13 gram per cubic centimeter. The bodyside liner may also be surface treated with about 0.28 weight percent of a surfactant commercially available from the Rohm and Haas Co. under the trade designation Triton X-102.

- 15 The bodyside liner of the present invention also includes oat extract which is configured to protect and provide a soothing effect to the skin of the wearer. As described above the oat extract is desirably solubilized to provide an oat extract solution which is then applied to the bodyside liner material. The oat extract solution may be applied by any
- 20 conventional means, such as dipping, spraying, printing, brush coating or the like. The oat extract solution may be applied to the entire bodyside liner or may be selectively applied to particular sections of the bodyside liner, such as the medial section along the longitudinal centerline of the absorbent article, to provide improved skin sensitivity to such sections. Alternatively, the oat extract may be applied to bodyside liner in a
- 25 substantially dry state or in an encapsulated state.

- The oat extract may otherwise be impregnated into a porous or microporous carrier material which is then incorporated into the absorbent article. In addition, if the bodyside liner of the absorbent article is relatively porous, the oat extract may be applied to a layer
- 30 between the bodyside liner and the absorbent body of the diaper. In such a configuration, the oat extract may migrate through the bodyside liner to provide the soothing effect to the skin.

- The absorbent body of the absorbent article may suitably comprise a matrix of hydrophilic
- 35 fibers, such as a web of cellulosic fluff, mixed with particles of a high-absorbency material

commonly known as superabsorbent material. In a particular embodiment, the absorbent body comprises a matrix of cellulosic fluff, such as wood pulp fluff, and superabsorbent hydrogel-forming particles. The wood pulp fluff may be exchanged with synthetic, polymeric, meltblown fibers or with a combination of meltblown fibers and natural fibers.

- 5 The superabsorbent particles may be substantially homogeneously mixed with the hydrophilic fibers or may be nonuniformly mixed. The fluff and superabsorbent particles may also be selectively placed into desired zones of the absorbent body to better contain and absorb body exudates. The concentration of the superabsorbent particles may also vary through the thickness of the absorbent body. Alternatively, the absorbent body may
- 10 comprise a laminate of fibrous webs and superabsorbent material or other suitable means of maintaining a superabsorbent material in a localized area.

- The absorbent body may have any of a number of shapes. For example, the absorbent core may be rectangular, I-shaped, or T-shaped. It is generally preferred that the
- 15 absorbent body be narrower in the crotch area than in the front or rear portions of the article. The size and the absorbent capacity of the absorbent body should be compatible with the size of the intended wearer and the liquid loading imparted by the intended use of the absorbent article.

- 20 The high-absorbency material can be selected from natural, synthetic, and modified natural polymers and materials. The high-absorbency materials can be inorganic materials, such as silica gels, or organic compounds, such as crosslinked polymers. The term "crosslinked" refers to any means for effectively rendering normally water-soluble materials substantially water insoluble but swellable. Such means can include, for
- 25 example, physical entanglement, crystalline domains, covalent bonds, ionic complexes and associations, hydrophilic associations such as hydrogen bonding, and hydrophobic associations or Van der Waals forces.

- Examples of synthetic, polymeric, high-absorbency materials include the alkali metal and
- 30 ammonium salts of poly(acrylic acid) and poly(methacrylic acid), poly(acrylamides), poly(vinyl ethers), maleic anhydride copolymers with vinyl ethers and alpha-olefins, poly(vinyl pyrrolidone), poly(vinyl morpholinone), poly(vinyl alcohol), and mixtures and copolymers thereof. Further polymers suitable for use in the absorbent core include natural and modified natural polymers, such as hydrolyzed acrylonitrile-grafted starch,
- 35 acrylic acid grafted starch, methyl cellulose, carboxymethyl cellulose, hydroxypropyl



cellulose, and the natural gums, such as alginates, xanthum gum, locust bean gum, and the like. Mixtures of natural and wholly or partially synthetic absorbent polymers can also be useful in the present invention. Such high-absorbency materials are well known to those skilled in the art and are widely commercially available. Examples of

5 superabsorbent polymers suitable for use in the present invention are SANWET IM 3900 polymer available from Hoechst Celanese located in Portsmouth, Virginia and DOW DRYTECH 2035LD polymer available from Dow Chemical Co. located in Midland, Michigan.

10 The high absorbency material may be in any of a wide variety of geometric forms. As a general rule, it is preferred that the high absorbency material be in the form of discrete particles. However, the high absorbency material may also be in the form of fibers, flakes, rods, spheres, needles, or the like. As a general rule, the high absorbency material is present in the absorbent body in an amount of from about 5 to about 90  
15 weight percent based on total weight of the absorbent body.

Accordingly, the different aspects of the present invention can advantageously provide fibrous sheet materials which incorporate oat extract to provide a soothing effect to the skin of the wearer. The oat extract may also reduce redness, itching and irritation of the  
20 wearers skin. The use of oat extract, when compared to other oat derivatives, provides a soluble, relatively stable component for use with fibrous sheet materials which does not have a bad odor. Such fibrous sheet materials can advantageously be used for wet wipes such as baby wipes, hand wipes, face wipes, household wipes, industrial wipes and the like or in other sheet applications such as bed linens. The fibrous materials may  
25 also be used for facial tissues, bathroom tissue or towels or as materials in absorbent articles such as diapers or bandages which are intended to be in contact with the skin of the wearer.

While the invention has been described in detail with respect to the specific aspects  
30 thereof, it will be appreciated that those skilled in the art, upon attaining an understanding of the foregoing, may readily conceive of alterations to, variations of, and equivalents to these aspects. Accordingly, the scope of the present invention should be assessed as that of the appended claims and any equivalents thereto.

What is claimed is:

1. A fibrous sheet material intended for contact with skin of a user comprising a sheet of fibers which includes oat extract to provide a soothing effect to said skin.
2. The fibrous sheet material of claim 1 wherein said fibrous sheet material includes an oat extract solution which includes said oat extract and a solubilizing agent.
3. The fibrous sheet material of claim 2 wherein said solubilizing agent is butylene glycol.
4. The fibrous sheet material of claim 2 wherein said solubilizing agent is glycerin.
5. The fibrous sheet material of claim 2 wherein said solubilizing agent is aqueous sorbitol.
6. The fibrous sheet material of claim 2 wherein said oat extract solution comprises from about 0.5 to about 50 weight percent of said oat extract and from about 10 to about 90 weight percent of said solubilizing agent based on a total weight of said solution and water.
7. The fibrous sheet material of claim 2 wherein said oat extract solution comprises about 10 weight percent of said oat extract, about 45 weight percent of said solubilizing agent and about 45 weight percent water based on a total weight of said solution.
8. The fibrous sheet material of claim 1 wherein said fibrous sheet material is adapted for use as a facial tissue.
9. A wet wipe which includes an aqueous liquid which comprises an oat extract solution, a preservative, and water.
10. The wet wipe of claim 9 wherein said wet wipe includes from about 150 to about 600 weight percent of said aqueous liquid based on a dry weight of said wet wipe.
11. The wet wipe of claim 9 wherein said aqueous liquid includes from about 0.5 to about 10.0 weight percent of said oat extract solution based on a total weight of said liquid.

12. The wet wipe of claim 9 wherein said aqueous liquid includes from about 1.0 to about 3.0 weight percent of said oat extract solution based on a total weight of said liquid.
13. The wet wipe of claim 9 wherein said oat extract solution includes oat extract, a solubilizing agent and water.
14. The wet wipe of claim 13 wherein said oat extract solution includes from about 0.5 to about 50 weight percent of said oat extract and from about 10 to about 90 weight percent of said solubilizing agent based on a total weight of said solution.
15. The wet wipe of claim 13 wherein said oat extract solution includes about 10 weight percent of said oat extract, about 45 weight percent of said solubilizing agent, and about 45 weight percent water based on a total weight of said solution.
16. The wet wipe of claim 13 wherein said solubilizing agent is butylene glycol.
17. The wet wipe of claim 13 wherein said solubilizing agent is glycerin.
18. A wet wipe which includes from about 150 to about 600 weight percent of an aqueous liquid which comprises:
  - a) from about 0.5 to about 10 weight percent of an aqueous oat extract solution which includes from about 0.5 to about 20 weight percent oat extract and from about 30 to about 60 weight percent of a solubilizing agent based on a total weight of said solution;
  - b) from about 0.1 to about 1.0 weight percent of a preservative; and
  - c) water.
19. The wet wipe of claim 18 wherein said solubilizing agent is butylene glycol.
20. The wet wipe of claim 18 wherein said preservative is sodium hydroxymethylglycinate.
21. The wet wipe of claim 18 wherein said preservative is benzoic acid.

22. The wet wipe of claim 18 wherein said aqueous liquid further comprises a surfactant.

23. An absorbent article which comprises:

- 10           a) a substantially liquid impermeable outer cover;
- b) a liquid permeable bodyside liner which is positioned in facing relation with said outer cover wherein said bodyside liner includes oat extract to provide a soothing effect to a wearer's skin; and
- c) an absorbent body located between said outer cover and said bodyside liner.

24. The absorbent article of claim 23 wherein said oat extract is provided in an oat extract solution which includes said oat extract and a solubilizing agent.

25. The absorbent article of claim 24 wherein said solubilizing agent is butylene glycol.

26. The absorbent article of claim 24 wherein said solubilizing agent is glycerin.

27. The absorbent article of claim 24 wherein said oat extract solution comprises from about 0.5 to about 20 weight percent of said oat extract and from about 30 to about 60 weight percent of said solubilizing agent based on a total weight of said solution and water.

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# INTERNATIONAL SEARCH REPORT

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 6    A61K7/00    A61K7/48    A61K7/50		Intern.    .nal Application No <b>PCT/US 97/10724</b>
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 6    A61K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 195 15 609 C (KAO CORP GMBH) 28 March 1996 see the whole document ---	1-27
Y	EP 0 688 901 A (KIMBERLY CLARK CO) 27 December 1995 see the whole document --- <div style="text-align: center;">-/--</div>	1-27
<div style="display: flex; justify-content: space-between;"> <span><input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.</span> <span><input checked="" type="checkbox"/> Patent family members are listed in annex.</span> </div>		
<b>Special categories of cited documents:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&amp;" document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search  <div style="text-align: center; font-weight: bold;">5 November 1997</div>		Date of mailing of the international search report  <div style="text-align: center; font-weight: bold;">19/11/1997</div>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  <div style="text-align: center; font-weight: bold;">Sierra Gonzalez, M</div>

# INTERNATIONAL SEARCH REPORT

Inter. Appl. No.  
PCT/US 97/10724

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>DATABASE WPI Week 9646 Derwent Publications Ltd., London, GB; AN 96461260 XP002045750 "Antiinflammatory composition for bathing-containing aqueous and/or water soluble organic solvent extract of seeds of Avena sativa L., aluminium salt and carbonate" see abstract &amp; JP 08 231 379 A (KAO CORP.) 10 September 1996</p>	1-27
Y	<p>US 4 943 350 A (BOGART LARRY ET AL) 24 July 1990 see the whole document</p>	1-27
Y	<p>DATABASE WPI Week 9359 Derwent Publications Ltd., London, GB; AN 93402391 XP002045751 N M KASIMTSOVA: "Face cream which does not irritate or sensitise the skin-containing additional silicone oil, confectionery fat, stearyl stearate and extracts of oats, barley and lavender to improve quality." see abstract &amp; SU 1 776 407 A (AEROZOL SCI PRODN ASSOC) 23 November 1992</p>	1-27
Y	<p>WO 96 16681 A (PROCTER &amp; GAMBLE) 6 June 1996 see the whole document</p>	1-27

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern. Appl. No.

PCT/US 97/10724

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 19515609 C	28-03-96	EP 0739621 A JP 8310919 A	30-10-96 26-11-96
EP 0688901 A	27-12-95	US 5558873 A AU 2182495 A CA 2152199 A HU 75858 A JP 8049192 A PL 309216 A AU 4968796 A WO 9627707 A	24-09-96 04-01-96 22-12-95 28-05-97 20-02-96 27-12-95 23-09-96 12-09-96
US 4943350 A	24-07-90	NONE	
WO 9616681 A	06-06-96	US 5635191 A AU 4135396 A EP 0794803 A FI 972236 A NO 972395 A ZA 9510060 A	03-06-97 19-06-96 17-09-97 27-05-97 28-07-97 02-07-96

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